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10/090,963	03/05/2002	Dennis E. Chapman	112056-0047	6338

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EXAMINER

NGUYEN, CINDY

ART UNIT	PAPER NUMBER
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2161

MAIL DATE	DELIVERY MODE
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09/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/090,963

Applicant(s)

CHAPMAN, DENNIS E.

Examiner

Cindy Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 33-44 is/are allowed.
- 6) ☒ Claim(s) 4-31 and 43-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is response to amendment filed 06/26/07.

Response to Arguments

The rejection under Claim Rejections - 35 USC § 101 have been withdrawn.

Applicant's arguments have been fully considered but they are not persuasive.

Applicant argued that Rudoff and Hitz, taken alone or in combination do not teach or suggest Applicant's claimed novel copying, in response to the backup being coherent, the copies of the associated log files to the active file system. In further detail, in Applicant's claimed invention when a user selects a snapshot to restore, the associated log files are also restored. The log files include information that has not yet been incorporated in the database at the time the associated snapshot was created. The snapshot and the associated log file when restored return the database to the point in time that the snapshot and the copy of the log file were created. In response, these limitation were not specify clarify in the claimed invention.

In addition, Hitz discloses: copying, in response to the backup being coherent, the copies of the associated log files to the active file system, such as Hitz teach the contents of the root inode for the file system are copied into the inode of the snapshot in the inode file... duplicating the root inode in the snapshot inode effectively

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copies the entire active file system, the actual blocks that will be in the snapshot are the same blocks of the active file system, col. 21, lines 22-29; and for a consistency point when a new snapshot is created... allocates disk space for the blkmap file and the inode file and copies the active FS-bit into the snapshot bit that represents the corresponding snapshot in order to protect the blocks in the snapshot from being overwritten, col. 20, lines 62 to col. 21, lines 4.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 45-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Rudoff (US 6636878).

Regarding claim 45, Rudoff discloses: a method of restoring data in an active file system, the method comprising: selecting, by a user, a backup to restore therefrom, the backup comprising a snapshot of the file system and log files, the log files representing changes to the file system since the snapshot was rendered coherent (col. 10, lines 17-31, col. 11, lines 10-25, Rudoff); and

copying, the snapshot of the file system and the log files to the active file system (col. 12, lines 40-59, Rudoff).

Regarding claim 46, all the limitations of this claim have been noted in the rejection of claim 45 above. In addition, Rudoff discloses further comprising: verifying the selected backup of coherency, wherein the copying is performed in response to the backup being verified as coherent (col. 6, lines 50-57, Rudoff).

Regarding claim 47, Rudoff discloses a method of restoring data in an active file system, the method comprising: selecting a snapshot by a user, the snapshot including a database and log files associated with the database, the log files including changes to the file system that occurred before the snapshot was generated but had not been incorporated into the database before the snapshot was generated (col. 10, lines 17-31; col. 11, lines 10-25, Rudoff); and

copying the database and the log files associated with the database from the snapshot to the active file system (col. 12, lines 40-50, Rudoff);

Regarding claim 48, all the limitations of this claim have been noted in the rejection of claim 47 above. In addition, Rudoff discloses further comprising: further comprising selecting, by a user, all additional log files, newer than the selected snapshot, the additional log files including changes to the file system that occurred after the selected snapshot was generated (col. 10, lines 17-31); and

copying the additional log files to the active file system (col. 12, lines 40-50, Rudoff).

Regarding claim 49, Rudoff discloses a method of restoring data in an active file system, the method comprising: selecting a snapshot by a user, the snapshot including a pointers to blocks of a database and log files associated with the database, the log files including changes to the file system that occurred before the snapshot was generated but had not been incorporated into the database before the snapshot was generated (col. 10, lines 17-31; col. 11, lines 10-25, Rudoff); and

copying the database and the log files associated with the database from the snapshot to the active file system (col. 12, lines 40-50, Rudoff).

Regarding claim 50, all the limitations of this claim have been noted in the rejection of claim 49 above. In addition, Rudoff discloses further comprising: further comprising: selecting, by a user, all additional log files, newer than the selected snapshot, the additional log files including changes to the file system that occurred after the selected snapshot was generated (col. 10, lines 17-31, Rudoff); copying the additional files to the active file system (col. 12, lines 40-50, Rudoff).

Regarding claim 51, all the limitations of this claim have been noted in the rejection of claim 49 above. In addition, Rudoff discloses further comprising: further comprising: verifying the selected backup of coherency, wherein the copying is performed in response to the backup being verified as coherent (col. 6, lines 50-57, Rudoff) .

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-33, 37 and 42, 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rudoff (US 6636878) in view of Hitz (US 6311193).

Regarding claims 4 and 20, Hitz discloses: a method and a computer readable medium, including instructions executing on a computer for generating a point in time restoration of a set of database files and a set of associated log files to an active file system, the method comprising the steps of : selecting, by a user a backup to restore therefrom, the backup comprising a snapshot of the file system including the set of database files and copies of the associated log files (col. 10, lines 17-30, Rudoff);

Verifying the selected backup for coherency (col. 6, lines 50-57, Rudoff);

However, Rudoff is silent to discloses: Copying, in response to the backup being coherent, the snapshot of the set of database files to the active file system, Copying, in response to the backup being coherent, the copies of the associated log files to the active file system. On the other hand, Hitz discloses: Copying, in response to the backup being coherent, the snapshot of the set of database files to the active file system (col. 17, lines 58 t col. 18, line 6, Hitz); Copying, in response to the backup being coherent, the copies of the associated log files to the active file system (col. 18, lines 1-6, Hitz). The motivation being to enable the system prevents new data written to the active file system from overwriting old data that is part of a snapshots.

Regarding claims 5, 12 and 16, all the limitations of these claims have been noted in the rejection of claims 4, 10 and 14 above, respectively. However, Rudoff/Hitz disclose: wherein the step of copying the snapshot to the active file system further comprises the step of copying contents of a root inode associated with the snapshot to a root inode associated with the active file system (17, lines 49 to col. 18, line 6, Hitz).

Regarding claim 6, all the limitations of this claim have been noted in the rejection of claim 4 above. In addition, Rudoff/Hitz discloses: wherein the backup is selected from a set of backups associated with the active file system (col. 19, lines 31-47, Hitz).

Regarding claim 17, Rudoff/Hitz discloses: a method for generating a backup of a set of database files associated with the database program and a set of associated log files, the method comprising the steps of: performing a snapshot operation on the set of database files (col. 17, lines 50 to col. 18, lines 6, Hitz); and

Copying the set of log files to a directory associated with the backup (snapshots stored in a directory, col. 18, lines 22-29, Hitz).

Regarding claims 7, 13 and 15, 33, all the limitations of these claims have been noted in the rejection of claims 4, 10 and 14 and 17 above, respectively. In addition, Rudoff/Hitz discloses wherein the method further comprises the step of renaming the

copies of the associated log files to the set naming convention (col. 15, lines 20-25, Rudoff).

Regarding claim 8, all the limitations of this claim have been noted in the rejection of claim 4 above. In addition, Rudoff/Hitz discloses: wherein the database files and log files are associated with electronic mail message (col. 17, lines 59-61, Rudoff).

Regarding claim 9, all the limitations of this claim have been noted in the rejection of claim 4 above. In addition, Rudoff/Hitz discloses: wherein the set of associated log files further comprises data to be incorporated into the set of database files (fig. 18A-18C, Hitz).

Regarding claims 10 and 21, all the limitations of these claims have been rejected as claim 4 above. In addition, Rudoff/Hitz discloses: Copying the copies of the log files associated with the set of snapshots created later in time than the selected snapshot to the active file system (col. 19, lines 23-30, Hitz).

Regarding claim 11, all the limitations of these claims have been noted in the rejection of claim 10 and 4 above. It is therefore rejected as set forth above.

Regarding claim 14, Rudoff/Hitz discloses: method for generating a point in time restoration from a set of backups, each of the set of backup comprising a snapshot and copies of a set of log files associated with the snapshot, the method comprising the steps of selecting one of the set of backups to generate the point in time restoration therefrom (col. Col. 20, lines 44-61; col. 22, lines 3-25, Hitz);

Copying the database files from the snapshot to an active file system (col. 17, lines 58 to col. 18, lines 6, Hitz); and

Copy the copies of the set of log files to the active file system (col. 18, lines 31-45, Hitz).

Regarding claim 18, all the limitations of this claim have been noted in the rejection of claim 17 above. In addition, Rudoff/Hitz discloses: wherein the method further comprises the step of validating a snapshot generated by the snapshot operation (col. 14, lines 42-60, Hitz).

Regarding claim 19, all the limitations of this claim have been noted in the rejection of claim 18 above. In addition, Rudoff/Hitz discloses: wherein the method further comprises the step of marking, in response to a successful validation of the snapshot, the snapshot as a backup snapshot (col. 14, lines 42-60 and col. 20, lines 18-42, Hitz).

Regarding claims 22, 25, 28, 30-32, Rudoff/Hitz discloses: a method, a file system, a computer readable media and electromagnetic signals propagating on a computer network comprising: rendering the file system coherent in preparation for generating the backup, to product a coherent file system (col. 20, lines 18-42, Hitz); creating a snapshot of the coherent file system, the snapshot created as a copy of a set of pointers to data, the data stored in the coherent file system (col. 20, lines 44-60, Hitz).

Regarding claims 24 and 27, all the limitations of these claims have been noted in the rejection of claims 22 and 25 above, respectively. In addition, Rudoff/Hitz discloses: maintaining the file system available for access by users while generating the backup (col. 14, lines 5-15, Rudoff).

Regarding claims 23 and 26, all the limitations of these claims have been noted in the rejection of claims 22 and 25 above, respectively. In addition, Rudoff/Hitz discloses: incorporating a log file into the file system to render the file system coherent (col. 11, lines 63 to col. 12, lines 11, Hitz).

Regarding claims 37 and 42, all the limitations of these claims have been noted in the rejection of claims 34 and 39 above, respectively. In addition, Rudoff/Hitz discloses: wherein the step of copying further comprises: renaming the copy of the first log file and the copy of the second log file according to a naming convention of the database such that the first log file and the second log file are recognized by the database (col. 15, lines 20-25, Rudoff).

Regarding claim 52, Rudoff/Hitz discloses: A data backup apparatus, comprising:
an active file system (col. 17, lines 50-56, Hitz); a backup including one or more snapshots in communication with the active file system, the snapshots representing a database at a point in time (col. 19, lines 1-30, Hitz);

metadata associated with each of the snapshots (the size of the blkmap entries), the metadata in communication with the active file system and including log files which represent changes to the active file system that occurred before each snapshot was generated but had not been incorporated into the database before the particular snapshot was generated (col. 21, lines 64 to col. 22, lines 18, Hitz); and

a user interface in communication with the active file system, the user interface adapted for selecting a snapshot and log files to restore from associated with the selected

snapshot or selecting a snapshot to restore from and all of the log files generated since the selected snapshot was generated (col. 10, lines 17-31 and col. 15, lines 45-63, Rudoff).

Regarding claim 53, all the limitations of this claim have been noted in the rejection of claim 52 above. In addition, Rudoff/Hitz discloses: wherein the snapshot includes pointers to blocks of a database (col. 18, lines 31-45, Hitz).

Regarding claim 54, all the limitations of this claim have been noted in the rejection of claim 52 above. In addition, Rudoff/Hitz discloses: wherein the snapshot includes data of a database (fsinfo block, col. 18, lines 31-45, Hitz) .

Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hitz (US 6311193) in view of Sawdon et al. (US 6748504) (hereafter Sawdon).

Regarding claims 55, Hitz/Rudoff disclose: a method, comprising: generating a first snapshot at the first point in time (i.e., generating a snapshot, col. 21, line 62 to col. 22, line 10, Hitz); coping a set of log files at a first point in time to create a first log file copy (i.e., creating a snapshot and a consistency point is that all entries of the blkmap file have the active FS-bit copied into the snapshot bit... in order to protect the blocks in the snapshot from being overwritten, col. 20, lines 44-60, Hitz); generating a second snapshot at a second point in time (i.e., this enable a plurality of snapshots to be created, col. 19, lines 65, Hitz); copying the set of log files at the second point in time to create a second log file copy (i.e., creating a snapshot and a consistency point is that all entries of the blkmap file have the active FS-bit copied into the snapshot bit... in order to protect the blocks in the snapshot from being overwritten, col. 20,

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lines 44-60, Hitz). However, Hitz didn't disclose: restoring the file system using the first snapshot, the first log file copy and the second log file copy. On the other hand, Sawdon discloses: restoring the file system using the first snapshot, the first log file copy and the second log file copy (i.e., this set of changes is only able to be successfully applied to a file system that has been restored to the state of snapshot,... col. 21, lines 20-40, Sawdon). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include step for restoring the file system as taught by Sawdon in the system of Hitz. The motivation being to enable to restore in order to establish a base file system and the snapshot tag of the latest snapshot that has been applied to the base file system is also stored in the super block of the file system (see col. 21, lines 37-46, Shawson).

Allowable Subject Matter

Claims 34-44 are allowed in light of the applicant arguments and in light of the prior art made of record.

The following is an examiner's statement of reasons for allowance: the prior art of record and that encountered while searching for the claimed invention fails to anticipate and/or suggest: a method for generating a point-in-time restoration of a database to an active file system comprising: copying the first snapshot, the copy of the first log file, and the copy of the second log file to the active file system, to thereby restore at least a portion of the information received at the database subsequent to the first time without using the second snapshot as recited in claims 34, 39 and 44.

The dependent claims 35-38, 40-43, being further limiting to the independent claims 34 and 39 definite and fully enable by the specification are also allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Contact Information

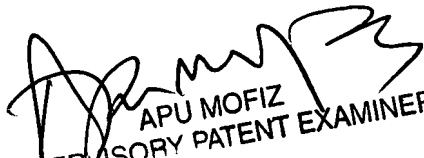
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy Nguyen whose telephone number is 571-272-4025. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cindy Nguyen



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